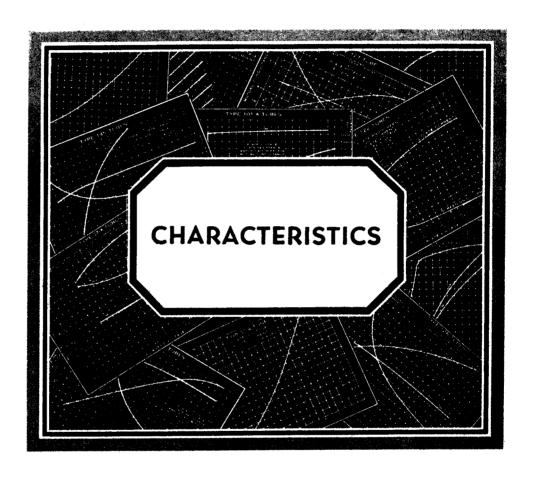


CASS ALTSHULER
2737 RUSSELL ST. ASH. 9627
BERKELEY, CALIFORNIA

# ARCTURUS



ARCTURUS RADIO TUBE COMPANY NEWARK, NEW JERSEY

8	_			ž I	oi oi		TS	•	0		10.0	30.01		8	3.0		1.	01 02	11.7		17.71	11.6		or .	es es
	CAPACITANCE	}	• •	31	2.7		+		0.4		8.0	5.3		8.6	3.5	***********	3.4	80	6.0		8.9	6.8		5.7	10°
INTERELECTRODE	PACIT		: [				+		1		50	000		ц.		<del></del>			0166		9	8	$\vdash$	10.	
	_	-	GR	_	4.			:	8-1		Ļ	╽.		0	8.8		9.0	5.7	Ŀ		Ŀ	<u> </u>		•	0.8
	RATED	POWER	2-1 2-1 3-1 3-1	WATIS			Ş	<b>888</b>	18	25						8 8 8 8 8 8 8 8	ន	376			8				
212	DATER	PLATE	LOAD	OHMS			18 000	113	5.300	10,000						4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	15,000	7,000 5,700	100,000		7,000				
212222	-121	ATION	ACTOR!			00	0	000	8.5	& & & &	260.0		680 0.00 0.00	000 000		0000	000	8.8		780.0	70.0	224.0 560.0 620.0		815.0 815.0 370.0	000
ı	200	ONDIC	10 10 10 10 10 10 10 10 10 10 10 10 10 1	1103		800	1830	88	3576	1800	200		1000	936 1100 1150		975 1000 1000 1000	888	988 1060		6.00 0.00	1450	2606) 6006) 6206)		850 1050	780 900 000
AVERAGE			TANCE	1		10 80 90 90 90 90 90	000	5,000	5,400	2.4 00 00 00 00 00 00 00 00 00 00 00 00 00	72.5,000 825,000		6.00 000 000 000 000	8 9 900 4 600		1	13.3 200 300 300 300 300 300	8,600		350,000	000*09	400,000 600,000 1,000,000		250,000 300,000 350,000	11. 00.00 00.00
2	-	Š	₹ ¥	t																					
		8		I							9.0		7.0							00	2.0	100		0.6	
THE INTERIOR		PLATE	ý ¥			2 KG	0.04	16.0	8.8		1.8	700	444	6 2 2 9 2 2 9	3.00 0	es de Pere Pere Ces	888 804	8.0 12.5	0 0	1,7 1,7	14.5	ଳ- ଫ ଫ ଖ ଖ ଖ		88.0	00044 8 8 10 14
	<b>\</b>	Z Z	HEATER	2	9.50		1.25		0.25		0.13	1,76		1,06	1.75		90°0	0.18	0 0		0.86	90°0		0.80	0.30
		Ğ	•												! !										
		ŝ	,	T																					
		 6	3		<del></del>						64.0	80.08	000						45.0 67.5	67.5 67.5	136.0	67.5 67.5 67.6		67.5 90.0	
		ö	(NEGATIVE)			9.0	0.83	31.0 39.0	5.0	18.0	1,5	6.0(3)	1 10 10 0 0	7.0 10.0 14.5	30 0(4) 33 0(4)	0 0 2 C	4.5 13.5	88.5 30.08	4.5(4) 5.0(4)	8.0	13.6	888 000		1.5 1.5 3.0	10.0(4) 20.0(4) 6.0
		PLATE		8	3	90.0 185.0	250.0	250.0 250.0	000	180.0	126.0 126.0	0.03	180.0 850.0	90.0 135.0 180.0	250.0 275.0	250.0 250.0 250.0	90.0 136.0 180.0	136.0	126.0 180.0	185.0 180.0	136.0	67.5 136.0 180.0		90.0 126.0 180.0	90.0 180.0 135.0
ľ	FILA-	KEN-	HEATER	3	3		9.6		6.0		8.8	20° 82		1.5	8.6		0*3	0°8	0.8		0*3	0.8		6.5	8.8
4,	3/	4	72	ľ	4		a		<b>F</b>		Pa	×		ĵia,	æ		Şeg	ñ	Ç.		ı	Æ		H	iui
		OPERATION		l	DETECTOR	AMPLIFIER	AMPLIFIER	CLASS A	DETECTOR OR AMPLIFIER	AMPLIFIER	AMPLIFIER	DETECTOR BIASED (I)	AMPLIFIER	AMPLIFIER	DETECTOR BIASED(2)	AMPLIFIER	DETECTOR OR AMPL. AMPLIFIER	POWER AMPLIFIER	DETECTOR BIASED(S)	AMPLIFIER	AMPLIFIER CLASS A	SUPER-CONTROL R.F. AMPLIFIER	PE 51	AMPLIFIER	DETECTOR BIASED® AMPLIFIER
		CLASS			TRION			TRIODE		TRIODE	TETRODE		TETRODE	TRIODE		TRIODE	TRIODE	TRIODE		TE TRODE	PENTODE	PENTODE	USE TYPE	TETRODE	TRIODE
_		TYPE		I	-	<u> </u>		50		12-A	22		42	26		27	30	31		32	33	34	35	36	37

4.1 8.5	10.0				4.5 5.0			5.0 3.0	6.0 10.0	1.6 8.0	3°2 2°2	8.9 5.3
10	.007	+	<del>                                     </del>	-	2.1	<u> </u>		9.0	• 000	1.6	8.8	.00%
200		2000	900mg		1600 2000 1000	1250 16000(w) 20000(w)		2400 3400 4600		76 160 350		
8,500		7,000	4.500		3.500 4.500	6,400 1,300 1,450		4,100 3,670 4,350		26,000 20,000 20,000		250,000
100.0	360.0 750.0 1050.0	0.222	0.08		មាសម មាល់កំ	5.6		20 20 20 20 20 20	350.0 445.0	000 000	13.8	000
950	96007 100007 106007	2200	0002 2002 2002		1850 2000 2100	2550		2000 2100 2100	11600	750 975 1100	1450	1995
102,000	375,000 750,000 1,000,000	200,000	46.000 35.000		1,900 1,750 1,670	2,380		1,800 1,800	300,000 400,000	11,000 8,500 7,500	6,500	1 500 000
010	044	10	00						IQ IQ			-
7.0 2.0	2000 2000 244	34.0 6.5	34.0 7.0		34.0 36.0	0.4.0		65 0 65 0 65 0 65 0	6.63 5.03 5.03 5.03 5.03 5.03 5.03 5.03 5.0	8 6 8 0 0	80.	000
02*0	0.80	0.0	0.30		1,50	1.75		1,25	1.75	1.00	1.00	00*۲
						202			-			(23)
100.0	000000	250.0	96.0 135.0			250.042) ± .043) ± .043			0°06 0°06 0°06			0.001
9.0	3.0 3.0 7.0(8) 7.0(8)	36.55	15.0 20.0		31.5 50.0 56.0	33.0 ± .0(m) ± .0(m)		63.0 70.0 84.0	3.0 7.0	10.5 13.5 20.0	20°0(4)	6.0(2)
100.0	90.0 130.0 250.0 180.0 250.0	250.0	95.0 135.0	-	180.0 250.0 275.0	250.0 (/s) 300.0 400.0		350.0 400.0 450.0	180.0 250.0 250.0	126.0 180.0 250.0	250.0 250.0	250.0 250.0
6.3	6.8	6.3	25.0 m		2.5	2.5		7.5	2,5	9°2	8.5	3.5
Ħ	M	н	Ħ		4			di .	B	Ħ	Ħ	н
AMPLIFIER CLASS A	SUPER-CONTROL R.F. AMPLIFIER MODULATOR	<b>AMPLIFIER</b>	AMPLIFIER CLASS A	TYPE 39-44	AMPLIFIER CLASS A	AMPLIFIER CLASS A AMPLIFIER CLASS B	PE PZ	AMPLIFIER CLASS A	VARIABLE-MU AMPLIFIER MODULATOR	AMPLIFIER (20) CLASS A	DETECTOR BIASED(2) AMPLIFIER	DETECTOR BIASED(1)
PENTODE	39-44 PENTODE	PENTODE	PENTODE	USE TYF	TRIODE	TETRODE	USE TYPE	TRIODE	TETRODE	DUPL EX DIODE TRIODE	TRIODE	PENTODE
38	39-44	42	43	44	45	46	47	20	51	55	56	57

- For use as a grid leak detector 250-volts plate; soreen up to 70-volts; capacity .00025-mfd; resistance 1-5 megohms; grid return to cathode. ij
  - For use as a grid leak detector 90-volts plate; capacity .00025-mfd; resistance 1-5 megohms; grid return to cathode. œ.
- Screen gr, -20 to -45-volts; adjust gr to give 0.1 ma. with no a.c. input signal. , 10
- 4. Adjust g1 bias for plate current of 0.2 ma. with no a.c. input signal.
- For use as a grid leak detector 135-volts plate; .00025-mfd; resistance 1-5 megohms; soreen up to 45 volts; plate load 100,000 ohms; grid return to esthode. . .
- Mutual conductance at g. -22.5 volts is approximately 15 u-mhos.
- Kutual conductance at g1 -42.5 volts is approximately 2 u-mhos. . ě.
- This grid bias is minimum for oscillator peak potential of 6.0 volts. .
- 9. Total harmonic distortion 11%.
- Total harmonic distortion 9%. 9
- Heater to cathode potential should not exceed 90 volts d.c. as measured between negative heater terminal and cathode.

- 12. Grid ga adjacent to plate is connected to plate.
- g, and g, are connected together to serve as control grid. 13.
- Peak plate current (per tube) 150 ma, and maximum plate dissipation (per tube) 10 watts.
  - Peak plate current (per tube) 200 ms. and maximum plate dissipation (per tube) 10 watts. 15.
    - 16. Maximum continuous power output for two tubes 20-watts.
- 17. Maximum signal potential (rms per tube) 40 volts.
- 18. Maximum signal potential (rms per tube) 41 volts.
- Mutual conductance at g. -40 volts is approximately 15.0 u-mhos, and at -50 is 0. 19.
  - Diode units used for half-wave and full-wave detection, and ave arrangement.

80

- Screen g, , 20 to 60-volts, adjust g to give 0.2 ms. with no input signal.
- Cut-off of cathode current occurs at -7 volts (g ).
- Suppressor (g ) connected to cathode at sooket.

8	<u></u>	DUTPU	6.9			2,1	3.8	10.6	10.6								4.3				2.5	2.5		13.2	
ECTR	TANC	-1 1	5.8			7.0	1:1	4.4	4.4								1.5				2.5	3.5		8.7	$\dashv$
INTERELECTRODE	CAPACITANCE	MMFD GRID INPU				7.6	27	.000	,00°								1.8				3.8	3.3		1.5	
-		MILLI-	1	3000 3000	80000	24 P. 50 05 5				5500(43)							75 160 350	300 400	1250	2500(54)			900	2700	3300
		LOAD COHMS	Ì '	6.000 6.000	8,000¢	8 8 9 000 000 000 000		250,000		7,000				(43)	(69)		25,000 20,000 20,000	7,000	000	13,600(22)			7,000	7,000	6,600
COEFFICIENTS		FACTOR	1280.0	100.00	-1-11-1-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1	000	0.001	1500.0	1100.0			***************************************					លល់ល សំសំសំ	4 4	125.0		9.9	9*9	60.0	150.0	0.86
	ANS-	MICRO	1600km	2500		1400 1650 1700	2100	385038	11000m 14500m 16500m								750 975 1100	1500	1635		425	425	2000	2500	3160
JAK JAK		TANCE TANCE OHMS	2	Z,400		2,170 1,820 1,750	91,000	1,500,000	1,000,000 800,000 600,000								11,000 8,500 7,500	3,000 2,750			16,500	15,500	30,000	000,00	38,000
	ئ	5.₹																							
	ن	N ₹	3.0	6.6	8	<u> </u>	<del>                                     </del>	9.0	488	(24)	ļ		3	(643)	<u> </u>				N 10	(ty)			7.5	0.9	8.2
	PI ATE		84 90	35.0	13.04%	10.0 17.3 20.0	8.0	2.3	10.5	7.5(42)	125.0	250 250 250 270 270	85.046	125.04	250,0%	50.0	3.7 6.0 8.0	20.0	20.0	3.04	2.5	2.5	25.0	31.0	36.0
	MENT.	HEATER AMPS	1.00	2.00		0.25	0.30	0.30	0.30	09.0	2.00		1.25	3,00	3.00	09°0	0.30	0**0			8.	8.	-25	1.75	2.00
		3																							
		ဌ	(23)	250ts (27)	4000			(34)	(34) (36) (34)									160(26) 180(26)	(23)	180%			(55)	(55)	(34)
		es S	100.0	250.0(2) 250.0(28)	# • 0(23)			100.0	75.0 100.0 125.0									160.0/26	163.0(28) 180.0(28)	± • O(52)			180.0	250,0	250.0
		G <sub>1</sub>	3.0	18.0	# +	27.0 50.0 50.0 50.0	0.8	7.0km 3.0	000	0°+							10.5 13.5 20.0	0.02	18.0	± • O(52)	4.5	4.5	10.01	36.6	16.5
TITE TO TEN		PLATE	250.0 250.0	250.0 250.0	400.0	90.0 135.0 180.0	250.0	250.0 250.0	180.0 250.0 250.0	180.0 (4/)	350.0 (44) 100.0 (44) 150.0 (45)	350 0 (52) 400 0 (52) 550 0 (53)	700.0	600.0 (47)	500.0 (47)	225.0 (51)	136.0 180.0 250.0	160.0 180.0	0.081	180.0	90.0	0.06	180.0	250.0	250.0
ı	FILA-		8.8	2.5	-	9,0	8.0	6.3	6.3	6.3	0.0	A 40	7.6 7	2.5	0.0	6.3	6.3	8.0	-1CT		3.3	3.3	5.0	2.6	2.5
d	34.	LIN3	×	д		St.	tici	æ	×	Н	Bq		ß,	fiq.	ßt,	н	ш	24			•	4	<b>64</b>	G,	н
	OPERATION		VARIABLE-MU AMPLIFIER MODULATOR	AMPL.CLASS A TRIODE AMPL.CLASS A PENTODE AMPL. CLASS B TRIODE	PER TUBE TWO TUBES	AMPLIFIER CLASS A	AMPLIFIER (33) CLASS A	DETECTOR BIASED®	AMPLIFIER CLASS A	AMPLIFIER CLASS B	RECTIFIER FULL-WAVE	HALF-WAVE	RECTIFIER HALF-WAVE				AMPLIFIER (20) CLASS A	AMPLIFIER CLASS A TRIODE	AMPLIFIER CLASS A PENTODE	AMPLIFIER CLASS B TRIODE - PER TUBE TWO TUBES	DETECTOR OR	DETECTOR OR AMPLIFIER	AMPLIFIER CLASS A	AMPLIFIER CLASS A	AMPLIFIER CLASS A
	CLASS		PENTODE	PENTODE		TRIODE	DUPLEX DIODE TRIODE	PENTODE	PENTODE	PUPLEX	DUPLEX	DIODE	DIODE	DUPLEX DIODE MERCURY VAPOR)	DUPLEX DIODE MERCURY VAPOR	DUPLEX DIODE	DUPLEX DIODE TRIODE		PENTODE		TRIODE	TRIODE	PENTODE	PENTODE	PENTODE
	TYPE		58	8		71-A	75	7.7	78	79	0	8	81	82	83	84	85		0 60		<b>∧∩66</b>	X0 66	٧	PZ	Р2Н

- With average power in-put of 380 milli-watts applied between grids gia and gib. Operating with condenser in-put filter. 43. For use as a grid leak detector 250-volts plate; soreen up to 70-volts; capacity .00025-mfd; resistance 1-5 megohms; grid return to cathode.
  - Diode units used for half-wave and full-wave detection, and ave arrangement.
- Screen g2, , 20 to 60-volts, adjust g1 to g1ve 0.2 mg. with no input signal.
- Mutual conductance at g. -40 volts is approximately 10 u-mhos and at -50 is 2.

Two tubes operated as full-wave rectifier delivers 170 ma. (max.) at 700 plate volts

rms. (max.).

Operating with choke in-put filter of 20-henry (min.).

**4**5. 46.

- This grid bias is minimum for oscillator peak voltage of 9.0-volts.
- Grids  $(g_z)$  and  $(g_3)$  are connected to plate when operated as class  $^nA^n$  amplifier. 26.
- Grid (gs) tied to cathode.
- Grid (gz) is screen only. 28.
- Grids (g1) and (g2) tied together and average dissipation is 1.5-watts (max.). 29.
- Grid (gs) tied to plate. 30
- Dynamic peak plate current 200 ma. and average plate dissipation 10-watts (max.). 31.
- Plate to plate. 38
- The triode unit is hi-mu and the diode units are used in various detector arrangements. 33
  - Grid (gs) connected to cathode at socket as suppressor. 34.
- Both the internal shield surrounding plate and grid (gg) tied internally to pin 3. 35.
- Mutual conductance at g1 -25 volts is approximately 10, and at -32.5 is 2.

  - Mutual conductance at g1 -35 volts is approximately 10, and at -42.5 is 2.
- Mutual conductance at g. -45 volts is approximately 10, and at -52.5 is 2.
- Both internal shield surrounding plate and cathode connected internally to pin 5.

Average plate dissipation 7-watts (max.).

#

- Static plate current 7.5 ms. and dynamic peak plate current (per plate) 90 ms. (max.).
- Grids (g.) and (g.) tied together and average dissipation 0.35 watts (max.). With a plate load of 9400-ohms nominal power output is 3500 milli-watts. Grid (g1) operating in oscillator circuit feeding 50,000 chms. Operating with either condenser or choke in-put to filter. Maximum peak plate current should not exceed 800 ma. Maximum peak inverse potential 1400-volts. Dynamic peak plate current 75 ms. (max.). Grids (g3) and (gs) connected together. Grid (gs) tied to center of filament. Approximate internal drop 15 volts. Maximum peak plate current 400 ma. 25 53 55. 47. 8 8 51. 54. 56. 57. £9. Mutual conductance approximately O (cathode current cut-off) at g1, -7.5 volts.
  - Grid (g4) operating as control grid for modulator. 58
- Conversion conductance 475 at -3 volts grid (gg.), and 2 at -50 volts.
- Cathode current out-off at -17 volts g. 8
- Cathode surrent sut-off at -13 volts gi.
- Cathode current cut-off at -81 volts g. 88
- Heater-cathode potential should not exceed 100-volts. 3
- Center tap on heater to permit dual operation.

			— Pi	IYSICA	L CH	ARACT	FERIST	ics —			TOVERALL	
TYPE	TYPE	TYPE	T	ERMINA	L A	RRANG	EMENT	PII	N NO		HEIGHT	DIAMETER (MAX.)
	BULB	BASE	1	2	3	4	5	6	7	TOP	INCHES	INCHES
01-A	8-14	⊻-4	,	P	G <sub>1</sub>	*			<u> </u>		4,688	1,815
10	8-17	¥-4	7	P	G <sub>1</sub>	7		<u> </u>	ļ	ļ	8.625	2.188
12 A	8-14	14-4	7	P	G1	y					4,688	1.813
22	8-140	M-4	P	P	<b>0</b> 2	P			<u> </u>	0,	5,051	1,815
24	8-14C	M-5	H	P	<b>G</b> 2	K	H			<u> </u>	5,081	1.818
86	s-14	<u>u-4</u>	7	P	G j	,					4.688	1.813
27	8-14	₩-6	H	P	G <sub>1</sub>	K	H		ļ	ļ <u> </u>	4.688	1.815
30	8-12	8-4	7	P	e <sub>i</sub>	7			<u> </u>		4,250	1.563
31	g-12	8-4	ľ	P	e <sub>1</sub>	F					4,250	1.565
38	S-140	¥-4	F	P	Ф <sub>2</sub>					91	5,051	1,815
88	S-14	¥-5	F	P	G <sub>1</sub>	<b>G</b> 2	7		ļ		4.688	1,618
34	8~140	M-4	P	P	92			ļ		o,	5,051	1,815
36	8-120	9-5	H	P	<b>₽</b> 2	K	H	ļ		81	4,581	1.563
37	8-12	S-5	H	P	G,	K	H				4.250	1.565
38	S-120	S-5	H	P	<b>6</b> 2	K	H	<u> </u>	ļ	0,	4,551	1,565
89-44	ST-120	S-5	H	P	<b>0</b> 2	K	H		<u> </u>	<b>G</b> 1	4,531	1,565
42	87-14	¥-6	H	P	<b>6</b> 2	e,	K	H	<u> </u>	<u> </u>	4.688	1.815
43	37-14	M-6	H	P	<b>e</b> <sub>2</sub>	G,	K	H	<u> </u>	ļ	4.688	1.815
45	ST-14	ц-4	7	P	<b>6</b> 1	7		<u> </u>	<b> </b>	ļ	4,688	1.815
46	S-17	¥-5	ř	P	G,	<b>0</b> 2	7	ļ		ļ	5.625	2,188
50	8-21	<u>¥-4</u>	7	P	G I	7			ļ	ļ	6.250	3.565
51	8-140	¥-5	H	P	<b>e</b> <sub>2</sub>	K	H		<u> </u>	G,	5.081	1.831
55	87-120	S-6	H	P	P	₽2	K	H		<u> </u>	4,551	1,568
56	S-12	9-5	H	P	G,	K	H			ļ	4,250	1,565
57	87-120	8-6	H	P	<b>G</b> <sub>2</sub>	<b>9</b> 3	K	H		G 1	4,957	1,568
58	ST-120	8-6	H	P	<b>G</b> 2	øз	K	H		G,	4,987	1,565
59	8 <b>7-1</b> 6	¥-7	H	P	<b>0</b> 2	G I	<b>0</b> з	K	H		5.375	2,063
71-A	5-14	¥-4	P	P	G I	F	.,				4,688	1.813
75	ST-126	8-6	H	P	Pi	₽2	K	H		G,	4,581	1,563
77	8 <b>T-1</b> 20	8-6	H	P	62 <sup>(35)</sup>	G <sub>3</sub>	K	H		<u> </u>	4,551	1.563
78	87-120	8-6	H	P	•2	øз	K (40)	H		G,	4.531	1,563
79	ST-120	8-6	H	Pa	G <sub>la</sub>	K	Pb	H		G ib	4.531	1.563
80	S-17	¥-4	,	Pi	P <sub>2</sub>	P				ļ	5,625	2.188
81	S-19	¥-4	7	P		7					6.250	2,438
82	8-14	¥-4	7	P	₽2	,					4.688	1,813
88	37-16	¥-4	7	Pi	₽2	7					5,375	2,063
84	9-12	S~5	H	Pi	₽2	K	H			<u> </u>	4.250	1,563
85	3 <b>%</b> -120	S~6	H	P	Pl	₽2	K	H		Q i	4,531	1,563
89	9T-120	3~6	H	P	62	GЭ	K	H		G i	4,551	1.563
99 UV	7-8	8 <b>-4</b> H	7	P	7	G <sub>1</sub>				<u> </u>	3,500	1.063
29 UX	<b>7-</b> 8	S-4	7	P	G <sub>i</sub>	7				ļ	4,125	1,188
GA	8-14	<b>14</b> ~5	7	P	0,	¢ <sub>2</sub>	7		<b></b>	<b> </b>	4,688	1.813
PZ	8-17	14-5	7	P	G,	0 <sub>2</sub>	F				5,625	2,188
PZH -	8~17	¥-7	H	P	<b>0</b> 2	G I	<b>е</b> з	K	Ħ		5,625	2,188
/UNDERLICH /UNDERLICH 'A'- AUTO.	8- 120 8-12	14-5 14-6	H	G P	P G	G G	K	H		K	4.438 4.125	1.563 1.563
245	S <b>T</b> ~14	<b>14-6</b>	H	P	¢2	Gį	K	H		ļ	4.688	1,813
247	8 <b>T-1</b> 20	8-7	H	P	G 3(57)	¢2	G j	K	н	G4	4,531	1,563
2B7	87-120	S-7	H	P	<b>6</b> 2	Pi	₽2	K	H	81	4,531	1.563
523	37-16	¥-4	7	P	₽2	F					5.375	2.063
6A7	IDENTICAL TO 2A7 EXCEPT HEATER											
6B7	DENTICAL TO 287 EXCEPT HEATER											
1223	S <b>T-1</b> 2	8-4	H	P	K	H					4,250	1,563
1225	S <b>T-1</b> 2	8-7	H	Pl	K i	H (64)	K <sub>2</sub>	₽2	H		4,250	1,563
2525	87-12	3-6	H	Pi	K i	K2	₽2	H		L	4.250	1,563

#### EXPLANATION OF SYMBOLS

#### CLASS OF TUBE

Tubes are assigned names according to the number of active elements, progressing outward from the cathode; a tube with a cathode, a control grid and a plate is classified as a triode.

NUMBER	CLASSIFI-	NUMBER	CLASSIFI-
ELEMENTS	CATION	ELEMENTS	CATION
2	Diode	6	Hexode
3	Triode	7	Heptode
4	Tetrode	8	Octode
5	Pentode	j	

Where two separate units are contained in a single bulb, a compound name is assigned -i.e., double diode, diode triode, etc.

## TUBE TYPE NUMBERS (New Tubes) The first digit or digits indicates the filament voltage in steps of one volt. The figure 1 is used for voltages below 2.0; the figure 2, for voltages between 2.0 and 2.9; 5, voltages between 3.0 and 3.9; etc.

Next is a letter for serial designation. Rectifiers start at  $^{\rm H}{\rm Z}^{\rm H}$  and work backwards; all other types start at  $^{\rm H}{\rm A}^{\rm H}$ .

The next number indicates the number of useful elements brought out to terminals.

### ELECTRODE SYMBOLS

In a tube embodying a single set of elements. the electrodes are designated:

Ħ	-	Heater	l G	-	Grid
K	=	Cathode	P	-	Plata

#### PLATE NOMENCLATURE

In tubes with one plate the letter "P" is employed; tubes possessing two sets of elements, as the type 75 (duplex diode triode), the plate of the triode unit is identified by the letter "P"; the two diode plates as Pi and P2.

NOTE:  $P_1$  and  $P_2$  always designate the plates of a diode or rectifier.

Where duplex elements are contained in a bulb each set are uniformly correlated and designated by small letters, a, b, etc. For instance, the type 79 class "B" twin amplifier; the plate and grid of one unit should be designated as Pa and Gla; the other unit Ph and Gab.

#### GRID NOMENCLATURE

In tubes possessing more than one grid the notations G1, G2, etc. are used. G1 is the grid nearest the cathode and the numbering numbering runs consecutively toward the plate.

Where grids are not coaxially arranged but interlaced as in the co-planar or twin-grid construction, the grids are designated as No. A-1 grid and No. A-2 grid, etc.

#### PIN IDENTIFICATION

To identify the contact pins of a vacuum tube base, point the pins toward the observer so that the two heater pins (the heater terminals or pins are larger than the others) are at the top. Separate these two pins by a vertical line and the heater pin to the right is No.1.

The numbers assigned to the remaining pins progress consecutively in a clock-wise direction.

#### TUBE DIMENSIONS

When capital letters designate the various dimensions of a radio tube, generally the letter "A" represents the over-all height of the tube as measured from the extreme bottom of the pins to the extreme top of the tube. When a top cap is employed "A" represents the over-all height of the tube including the top cap.

- B, the largest diameter of the tube,
- C, the diameter of the dome, D, the height of the top-cap,
- E, the height from the bottom of the base
  - to the top of the dome,
- F, the height of the base, G, the length of the pins,
- H, the diameter of the base.

When a single dimension is listed it represents the average dimension; when two are entered they are maximum and minimum.

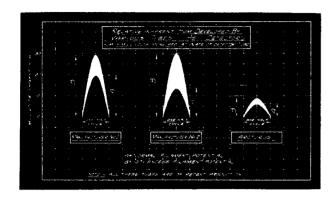
BULE SHAPE AND DIMENSIONS
A letter indicates the shape of the bulb and a figure represents the number of eights of inches as the maximum diameter of the bulb.

When the bulb is referred to as a S-16, it describes a "straight-sloped sided" bulb similar to that of the Ol-A, the maximum diameter being 16/8" or 2".

An ST-12 bulb has a tee section at the top, commonly called a dome bulb, similar to the glass of the 25-Z-5 rectifier. "C" appended to the bulb designation indicates a top cap.

### SALIENT FEATURES OF ARCTURUS TUBES

#### LABORATORY TESTS SHOW ARCTURUS TUBES HAVE LESS HUM



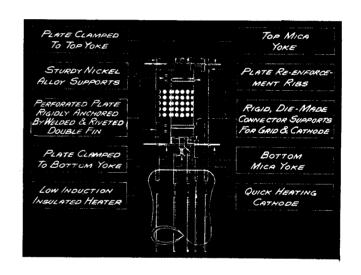
This diagram shows comparative hum output of three makes of tubes. Considerable increase in hum was shown with tubes of two manufacturers when the filament potential was increased, while the curve for Arcturus Tubes remained constant. While different ranufacturers tubes were used in this test, No. 1 and 2 are among the largest in the industry and the curves are representative of the tubes in present use. The tubes of manufacturer No. 2 were found to have lower average hum than other makes investigated with the exception of Arcturus.

#### UNITARY STRUCTURE PRINCIPLE FOR IMPROVED PERFORMANCE

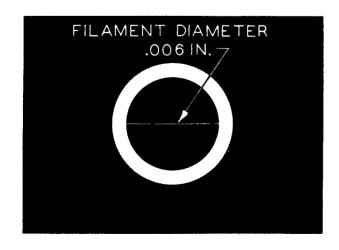
This exclusive Arcturus Unitary Structure is a decided advance and is the last word in tube ruggedness assuring uniform characteristics.

This sturdy construction insures precise spacing and grips every element firmly in position making all elements inter-dependent. This entire assembly, exceptionally rigid, is safe against distortion of elements and minimizes microphonism.

Rated as the most rugged tube construction on the market, this is another reason why Arcturus Tubes insure efficient and dependable performance, improved reception and satisfied customers.



#### PRECISION IN MANUFACTURE GUARDED BY 137 TESTS AND CHECKS



The average diameter of the filament used in Arcturus Tubes is like that shown by the hair-like line. Yet the precise construction of the elements in Arcturus Tubes is held to less than one-tenth of this dimension.

This precision in manufacture plus the rugged construction of Arcturus Tubes also insures uniformity of characteristics and performance in even the most critical circuits.

Guarding Arcturus quality are 137 tests and checks which each tube receives before it is shipped. Such fine workmanship and care have gained for Arcturus Tubes a world-wide acceptance for quality.